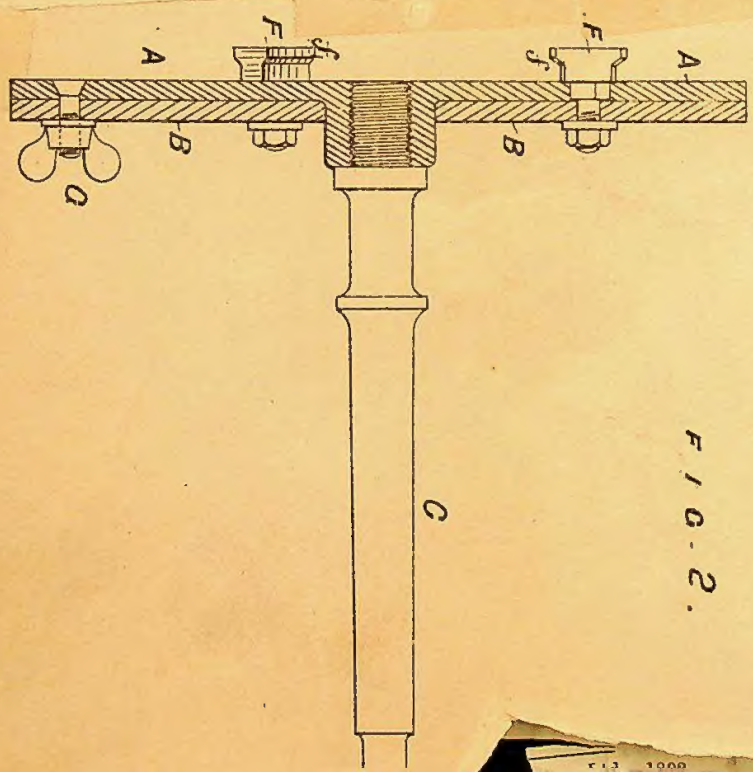
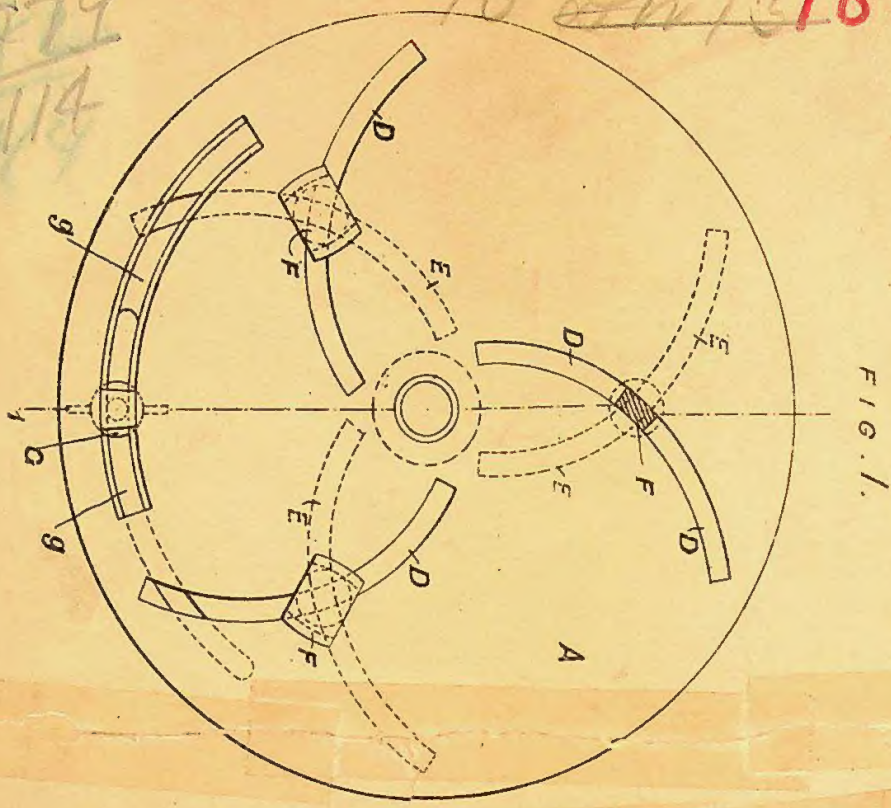


Britain 2,110 *Br.*
46-2m/3 1892
(1 SHEET)



[This Drawing is a reproduction of the Original on a reduced scale]



Date of Application, 3rd Feb., 1892

Complete Specification Left, 3rd Nov., 1892—Accepted, 10th Dec., 1892

PROVISIONAL SPECIFICATION.

Improvements in Machinery for Turning, Grinding, Buffing, and Polishing Metal Articles.

I, CHARLES BELK, of Furnival Works, Sheffield in the County of York, Manufacturing Silversmith, do hereby declare the nature of this invention to be as follows :—

My invention relates to means or apparatus employed in the operations of turning,
5 grinding, buffing or polishing metal goods principally those of circular form, such as salvers trays and the like, and it consists essentially of an improved chuck for holding and rotating the article whilst undergoing the aforesaid operation with the object of imparting to the article a regular and fine circular polish instead of the irregular one given by the usual method practised in the gold, silver, and metal
10 trades.

The improved chuck or work-holder is composed of two juxtaposed discs, the one fixed and the other loose upon a revolving spindle, each disc having slots extending in the direction between the centre and circumference, the slots of the two discs being oppositely curved, so that each slot of the one disc will lie across and coincide
15 at one point with a slot of the other disc, the points of coincidence of all the pairs of slots being equidistant from the centre of motion.

In these slots are fitted dogs for gripping the article to be operated on, each dog passing through a slot of both discs and its position therein being determined by the point of coincidence of the two slots so that by revolving the loose disc, the
20 radial distance of all the dogs may be adjusted simultaneously and co-equally to adapt them to grip and centre the article to be operated on, the jaws being locked in whatever position they may be set by a screw binding the two discs together.

The jaws are formed with lips or otherwise shaped on their inner and outer faces, to adapt them to clutch the article, either externally or internally as may be
25 required.

The article so held and revolved may then be turned, ground or polished by a hand tool or through a lever arm or by a revolving buffer running in front of, and at right angles to, the revolving face plate of the chuck.

Dated this 3rd day of February 1892.

30

C. BELK,

By A. M. & Wm. Clark,

53, Chancery Lane, London, Chartered Patent Agents.

COMPLETE SPECIFICATION.

Improvements in Machinery for Turning, Grinding, Buffing, and Polishing Metal Articles.

35

I, CHARLES BELK, of Furnival Works, Sheffield, in the County of York, Manufacturing Silversmith, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

My invention relates to means or apparatus employed in the operations of turning,
40 grinding, buffing, or polishing, metal goods principally those of circular form such as salvers, trays, and the like, and it consists essentially of an improved chuck for holding and rotating the article whilst undergoing any of the aforesaid operations with the object of imparting to the article a regular and fine circular polish instead
45 of the irregular one given by the usual method practised in metal trades.

Belk's Improvements in Machinery for Turning, Grinding, Buffing, &c. Metal Articles.

Reference is to be had to the accompanying drawings, forming part of this Specification, wherein Figure 1 is a face view (one of the dogs being in section) and Figure 2 is a section on line 1—1 Figure 1. The same letters of reference denote like parts in both figures.

The improved chuck or work-holder is composed of two juxtaposed discs A B, 5 the one fixed and the other loose upon a revolving spindle C, each disc having curved slots extending between the centre and circumference the slots of the two discs being oppositely curved so that each slot D of the one disc will lie across and coincide at one point with a slot E of the other disc, the points of coincidence of all the pairs of slots being equidistant from the centre of the spindle C. In each pair 10 of slots D, E, is fitted a dog or jaw F for gripping the article to be operated on, the position of each dog being determined by the point of coincidence of the two slots D, E, so that by revolving the loose disc B relatively to the disc A the radial distance of all the dogs or jaws F may be adjusted simultaneously and co-equally to adapt them to grip and centre the article to be 15 operated on, the dogs or jaws being locked in whatever position they may be set, either by nuts on their shanks or preferably by a single binding screw and wing nut G binding the two discs A B together. The dogs or jaws are formed with lips *f* or otherwise shaped on their inner and outer faces to adapt them to clutch the article either externally or internally as may be required. 20

To prevent the dogs or jaws turning in the slots, the portions of their shanks which pass through the slots D of the disc A are squared to fit therein whilst the remaining portions of the shanks are cylindrical so as to provide for the 25 varying obliquity of the slots D, E, relatively to one another and their extremities are screw-threaded to receive nuts by which the dogs are rigidly secured in the discs without preventing the circular adjustment of the latter. Or the heads of the dogs might be circular and have a lip all round in which case the shank need not be squared. The binding screw G passes through slots *g g* in the two discs concentric with the spindle C, the head of the screw being counter-sunk in the face of the disc A so as to be flush therewith whilst a wing nut 30 is applied to the opposite end of the screw and bears against the disc B thereby binding the two discs firmly together. The slots D, E, are not arcs of circles but are of varying curvature so as to cross each other at an approximately but not quite constant angle at whatever distance from the centre the point of coincidence may be the curvature being preferably such that the angle at which 35 the slots cross will so far vary that the simultaneous adjustment of the dogs by turning the loose disc shall be equally easy at all distances from the centre.

The article so held and revolved may then be turned ground or polished by a 40 hand tool or through a lever arm or by a revolving buffer running in front of, and at right angles to, the revolving face plate of the chuck.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is:—

The herein described chuck for holding, internally or externally, manufactured 45 metal articles whilst being turned, ground, buffed, or polished, consisting in the combination of the two juxtaposed discs having oppositely curved slots, those of the one disc crossing those of the other disc, and of dogs or jaws having inside and outside gripping faces or lips, the dogs being held in the slots of both discs at their points of coincidence, and at equal distances from the centre of motion, and of a binding screw for clamping the discs together and securing all the dogs in the 50 position to which they are adjusted, substantially as specified.

Dated this 3rd day of November 1892.

C. BELK,

By A. M. & Wm. Clark,

53, Chancery Lane, London, Chartered Patent Agents. 55